JOINT MPH PROGRAM

University of Gondar and Addis continental Institute of Public health

Assessment of pregnancy and Fertility desire among HIV positive women clients who were attending ART clinics in North Gondar administrative Zone.

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By

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Acronyms

AIDS	Acquired Immune Deficiency syndrome
ART	Anti Retroviral Therapy
CDC	Centers for Disease Control and Prevention
ETB	Ethiopian Birr
FP	Family Planning
GO	Governmental Organization
HAART	Highly Active Anti Retroviral Therapy
HAPCO	HIV/AIDS Prévention and Control office
HC	Health Center
HIV	Human Immune Deficiency Virus
IUD	Intra Uterine Device
MDG	Millennium Development Goal
MOH	Ministry of Heath
MTCT	Mother to Child Transmission of HIV
NAP+	Network of HIV Positive Associations in Amhara
NGO	Non Governmental Organization
PLHIV	People Living With HIV
PMTCT	Prevention from Mother to Child Transmission of HIV
RH	Reproductive Heath
SRH	Sexual and Reproductive Health
UNAIDS	Joint United Nations program on HIV and AIDS
WHO	World Health Organization

Abstract

Back Ground: Pregnancy, desire to have a child and Intentions for child bearing issues are important among HIV positive women. However, little is known about their actual fertility desire and intentions and how it may vary according to health & socio demographic characteristics especially in developing countries like Ethiopia.

Objectives: This study was conducted to assess the prevalence of pregnancy and fertility desire and identify factors related to fertility desire among HIV positive women who were attending ART clinics in Seven ART sites, North Gondar administrative zone.

Methods: The study was a facility based cross sectional survey that employed quantitative data among HIV positive women who were attending in seven ART sites of North Gondar administrative zone. Using a survey questionnaire that was pretested and structured, among 1320 sampled study subjects, 1287 HIV positive women were interviewed by trained health workers between August 01, 2010-September 30, 2010. Data was processed into computer program using Epi Info version 3.5.1 and analyzed by SPSS version 15.0. Logistic regression analysis was conducted to calculate adjusted odds ratios to identify factors that were significant predictors of the desire of women living with HIV to have children.

Results: Of the 1287 surveys completed, 51(4%) of them were pregnant and 480(37.3%) of the study subjects have expressed a desire for child in the future. Of note, 255(53.1%), 197(41%), and 28(5.9%) of them want to have one, two, three & more children respectively. In multivariate modeling, those of younger age, married or live together, low parity, having an improved health status and awareness of PMTCT services were associated with an increased likelihood of reporting a desire to have child in the future.

Conclusion and Recommendation

A large proportion of the HIV-positive individuals in the study were desired to have children indicating important implications for vertical as well as heterosexual transmission of HIV and the need for social systems for children borne to parents living with HIV to ensure that appropriate supports could be offered. Education and appropriate counseling that includes safer sex practices and methods to decrease the risk of HIV transmission should be given; Health care providers & relevant stakeholders can play a crucial role.

1. INTRODUCTION

HIV/AIDS is the fourth most common cause of death in the world and is estimated to have killed 3.1 million individuals and infected 4.9 million persons in 2005 alone (1). Globally, there were an estimated 33 million [30 million–36 million] people living with HIV in 2007. Women account for half of all people living with HIV world wide, and nearly 60% of HIV infections in sub-Saharan Africa. Over the last 10 years, the proportion of women among people

living with HIV has remained stable globally, but has increased in many regions. Globally, the number of children younger than 15 years living with HIV increased from 1.6 million [1.4 million–2.1 million] in 2001 to 2.0 million [1.9 million–2.3 million] in 2007. Almost 90% live in sub-Saharan Africa (1, 2).

The HIV/AIDS epidemic in Ethiopia continues to pose a threat to the lives of its people. The National HIV prevalence estimated for 2007 was 2.1 % (1.7% for male and 2.6% for females). The number of HIV-positive pregnant women is estimated to be 70,686 while Annual HIV-positive births were estimated to be 13,970 (3). In 2008, it was estimated that 331,718 PLHIV live in Amhara Region: of these 27,065 were HIV positive pregnant women while HIV positive births estimated were 5,148. But, the adult HIV prevalence was estimated 2.7% (3.3% for female and 2.2% for male) which is higher than the national prevalence of 2.1% (3- 5).

Since the start of ART treatment, the lives of HIV positives have been changed to a chronically ill patient. ART has also played an important role in decreasing perinatal HIV transmission to less than 2%, thereby reducing women's concern regarding HIV transmission to their infants (6). As more than 80% of all women living with HIV and their partners are in their reproductive years, many will continue to want children after learning their positive status, whether to start a family or to have more children. Others may wish to regulate their fertility. Scale-up of HIV testing and counseling and antiretroviral therapy will increase the number of people who know they are infected with HIV and who, as their health improves on treatment, may become more sexually active and their fertility may increase (7,8).

Many women decide to have a baby when they are already on therapy. This speaks volumes about the tremendous advances made with HIV drugs. Women feel better. They are healthier. They are thinking about Long-term relationships. They are thinking about a future and possibly a family. It is now increasingly common for women who conceive while they are on treatment to continue on treatment throughout their pregnancy (9).

As the AIDS epidemic continues, the question of how HIV will affect fertility and reproductive decisions in sub-Saharan Africa has been raised in many settings, from fieldwork interviews with rural Tanzanians to international conferences attended by professional researchers. Specifically, the concern has been voiced that men and women who are infected with HIV may attempt to 'hurry up' their fertility. This concern derives from the centrality of reproduction to life courses,

adult identities, and access to social support, particularly for women, in many African settings (10). For those women who lack the power to negotiate fertility, it seems plausible that those who become infected with HIV may also be reluctant to reveal their sero-status to partners (10, 11).

Recent years have witnessed an unprecedented global effort aimed at providing universal access to highly active antiretroviral therapy (HAART), however, comparatively little attention has been given to how HAART may affect reproductive decision-making, sexual and reproductive practices, and fertility. These issues are particularly critical in HIV endemic settings where the majority of new infections occur among women (12).

In the era of ART, for women living with HIV, there are many concerns regarding fertility desire, intentions of pregnancy and contraception use which are due as a result of sexual and reproductive practices thereby making issues of family planning, contraception and birth control a greater priority for these women (2).

Though few studies have been conducted on how HIV and fertility intersects, there is a need for continued examination of women living with HIV as the reproductive decisions may vary in the development of HIV care & treatment thereby indicating differences in relation to time, place, treatment (especially ART) in the local context. Hence, understanding the magnitude of intended or unintended pregnancy, the reasons for individual's desire on fertility and pregnancy should be pointed out according to the local context and age specific differences in addition to identifying factors contributing to a decision whether to try for a pregnancy or not. Desire for children within the context of HIV has important implications for the prevention of vertical and heterosexual transmission of HIV & may be seen as posing threat to women, children and society.

The study since it addresses the physical, mental and social wellbeing of a woman it was relevant to its purpose. It was also a timely issue and documenting it will help us in designing appropriate interventions. With the current consensus on the issues of maternal and child health improvements and women empowerment, it's felt that the results of the study will contribute for the progress towards MDG 3, 4, and 5 so that recommendations and ways forward from this study will be used by the health workers, planners and political decision makers.

That is why this study was conducted and aimed to determine the prevalence of pregnancy, assess fertility desire and identify factors related to fertility desire among HIV positive women, so that the basic information on fertility desire is documented and recommendations could be used.

2. Literature review

2.1 Situations of HIV/AIDS and RH needs in HIV positive women

Globally, women account for almost half of all HIV infections. The number of children living with HIV was estimated at 2.1 million in 2008. New HIV infections have been reduced by 17%. The declines reflect the effectiveness of HIV prevention interventions. However, in some countries there are signs that new infections are rising again. In 2008, 42% of people in need of

antiretroviral treatment were receiving it, compared to 33% in 2007. In 2008, 45% of HIV-positive pregnant women in low-and middle-income countries received antiretroviral for the prevention of mother to child transmission (PMTCT) (1).

Reproductive possibilities were much restricted in the first years of the HIV pandemic. For example, the Centers for Disease Control and Prevention (CDC) discouraged any reproductive attempt in HIV-infected persons due to the poor prognosis of the disease and the risk of transmission. However, even in those difficult times, many HIV-positive individuals chose to seek pregnancy, assuming the risk of sexual and/or vertical transmission of HIV (13).

HIV testing of pregnant women and the distribution of antiretroviral drugs during delivery and following birth are two primary approaches currently used to prevent MTCT (PMTCT). Two causes of the level of fertility are the desire for children and unmet need for contraception to limit or space births (12).

Access to reproductive health services for women with HIV is critical to ensuring their reproductive needs are addressed and their reproductive rights are protected (14). HIV-positive women have particular needs for contraception to avoid unwanted pregnancy. However, HIV-positive women who know their serostatus exhibit fertility desires and contraceptive behaviors that are different from those of other women (15, 16).

To date, most attention and resources for PMTCT programmes have gone towards implementing element 3 - the provision of antiretroviral prophylaxis to HIV-infected pregnant women. While this intervention represents a major public health achievement, the current impact of PMTCT programmes is limited by their failure to effectively link with sexual and reproductive health services and address the contraceptive needs of women with HIV. Population-based estimates of unintended pregnancies in women with HIV are not available, but selected studies of HIV-infected women suggest alarmingly high levels of unintended pregnancies, ranging from 51% to 91% (17-19).

As the AIDS epidemic continues, the question of how HIV will affect fertility and reproductive decisions in sub-Saharan Africa has been raised in many settings. Specifically, the concern has been voiced that men and women who are infected with HIV may attempt to ‘hurry up’ their fertility. This concern derives from the centrality of reproduction to life courses, adult identities, and access to social support, particularly for women, in many African settings (11).

There is still controversy over the best advice to give to sero-discordant couples. (These are terms for when one partner is HIV-positive and the other HIV-negative) It is usually unwise for sero-discordant couples to have unsafe sex. Even when politely called a “conception attempt”, there is always a risk to the HIV-negative partner of contracting HIV (20, 21).

2.2 Rates of Pregnancy and fertility desire in HIV positive women

Indisputable health improvements have occurred with the advent of antiretroviral therapy (ART) over the last 15 years, resulting in dramatic reductions in HIV-related morbidity and mortality and yielded improvements in quality of life (22, 23).

Scale-up of HIV testing and counseling and antiretroviral therapy will increase the number of people who know they are infected with HIV and who, as their health improves on treatment, may become more sexually active and their fertility may increase (24).

Previous studies addressing the fertility intentions of HIV positive women have been important but some are of limited scope. Most were conducted before the widespread use of combination ART, or included only small samples of women. For instance , a study conducted in Uganda with 191 women (92 HIV sero positive and 99 HIV seronegative at enrolment) aged 15–49 years in an HIV clinical cohort reveal that there were 2524 eligible visits and 216(8.5%) recognized pregnancies(25).

In contrast with above, The Cross-Sectional Study conducted among 490 HIV-positive women of reproductive age living in Ontario, Canada, has shown that 69% desire and 58% intend to become pregnant in the future. The study has also shown that Eighty-eight percent had previously experienced at least one pregnancy and 74% had given birth (31% after testing HIV positive). Twenty percent of women expected the pregnancies to be within one year, 12% between one and two years and 7% between two and four years (26).

Another study that examined >1200 heterosexual HIV-infected persons of reproductive age in South Africa conducted in 2007,showed that the desire for future pregnancies among women were 32 % and the rate of pregnancy was 3 % (27). Studies from Europe and North America indicate that HIV-infected women frequently become pregnant, and most HIV-infected individuals have fertility desires that change over time (28).

A study conducted in northern Nigeria among 340 PLHIV receiving care, found and suggest that One hundred and sixty seven females (65.5%) expressed a desire to have more children while indicating the Significant predictors of higher fertility desires were; religion, duration of diagnosis, low parity and awareness of partner's serostatus (29). Similarly, starting ART was associated with higher pregnancy rates in sub-Saharan Africa, nearly doubling the chances of a woman becoming pregnant (24).

2.3 Factors influencing fertility desire in HIV positive women

With availability of antiretroviral treatments, HIV is increasingly recognized as a chronic disease people live with for many years, Fertility desires were influenced by a myriad of demographic, health, stigma-associated and psychosocial factors. Cultural factors were also important, particularly in Sub-Saharan Africa and Asia (30).

Improving health with ART use may contribute to increased fertility desires through psychological mechanisms of increased hopefulness about the future and improved mental health, as well as through increases in sexual activity and new partner acquisition (31-34).

Many women decide to have a baby when they are already on therapy. This speaks volumes about the tremendous advances made with HIV drugs. Women feel better. They are healthier. They are thinking about long-term relationships. They are thinking about a future and possibly a family (35- 37).

There are several distinct facets to the association between HIV/AIDS and fertility. Every year, 70,000–100,000 HIV-positive women become pregnant in India. A majority of them do so to avoid societal disapproval of being childless and suspicions and prejudice about their status (38). For HIV-positive women in sub-Saharan Africa who are trying to have children, higher rates of stillbirth, spontaneous abortion, or infant and neonatal mortality will eliminate or truncate culturally prescribed periods of abstinence (24).

Indeed, the major proximate determinants of HIV infection and pregnancy are virtually the same; sexual exposure (through socially recognized unions or otherwise), contraceptive practice, reproductive tract infection, breastfeeding practices. On the other hand, women less than age 40, who have given birth to no more than one child was most likely to intend to become pregnant.

Younger age has consistently been a predictor of fertility intentions in all studies of HIV-positive women. This is one way in which HIV can play an indirect role in reproductive decisions among infected persons (38, 39).

Thousands of miles away in Swaziland, Africa, women living with HIV were echoing the same sentiments. Burdened by societal expectations to bear children irrespective of their HIV status, these women too, were giving in to the demands for grandchildren (40).

An insightful qualitative study conducted in Abidjan, Côte d'Ivoire among women who had been informed of their sero positive status reveals that the desire to childbearing continued to be paramount. Among women who had not yet attained their desired number of births, to curtail reproduction was viewed as a denial of the future. A further pregnancy, in contrast, i.e. having children would confirm her health and fecundity to her friends, considered normalcy by relatives and to her self (41).

A study conducted in Lesotho found that factors associated with wanting to give birth in the future have a similar relationship for HIV-positive and HIV-negative women in Lesotho. Marital status and the number of children still living are the strongest determinants of whether a woman wants to give birth in future. A currently married HIV-positive woman is almost 14 times more likely than a never-married woman to want to have a child, controlling for other factors (42, 43).

A study conducted in relation to contraceptive use among HIV positive and HIV negative woman in Rwanda have shown that over 40% of non-users said that they would use hormonal contraception if it was provided at the study clinic, but 40% of HIV-positive women desired more children (44, 45).

Another study shows that despite counseling, the desire to have children among HIV-positive women remained high, at 40 per cent, while 49 per cent of seronegative women stated a desire for more children. If an HIV-positive woman does not want to have a child in the future or if she wants to space her births, unmet need for contraception may still put her at risk of pregnancy (46).

2.4 Rates of Pregnancy, Fertility desire & intentions in HIV Positive women in Ethiopia

In Ethiopian context there is no published study regarding the prevalence of pregnancy and fertility desire and related factors that influence the fertility desire of HIV positive women. But, a cross-sectional study that was carried out in six public hospitals' ART units in Addis Ababa to assess fertility desire of both sexes have showed that the desire to have children among HIV-positive women receiving ART care was 44.7% (47).

Therefore this study will contribute to provide basic information and fill gaps in our context by an intention in revealing the actual proportion of pregnancy and fertility desire and identifying factors associated with fertility desire among clients with a specific focus on HIV positive woman of Child bearing age. It will be an input for further research and action.

In addition the study will give valuable information about the prevalence and other indirect results of SRH issues on PLHIV in consistent with the above studies, with a greater focus on clients in rural and woreda ART sites. More over, the study will give an input whether HIV-infected individuals 'should be able to have a satisfying, responsible and safe sex life, and that they should be able to reproduce and freely decide whether, when and how often to do so .

3. Objectives

3.1 General Objective

To assess the prevalence of pregnancy, fertility desire & identify factors related to fertility desire among HIV positive women who were attending ART clinics in N/Gondar administrative zone.

3.2 Specific objectives

1. To assess the prevalence of pregnancy among HIV positive women who were attending ART follow up care.
2. To assess the fertility desire in HIV positive women who were attending ART follow up care.
3. To identify factors that influence fertility desire among HIV positive women who were attending ART follow up care.

4. Methods

4.1 Study settings

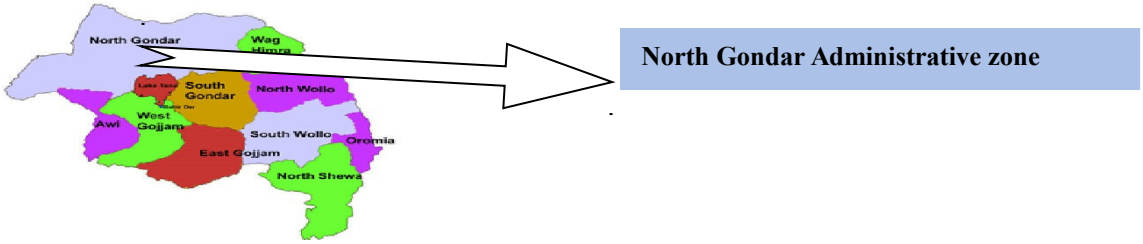
North Gondar is one of the Amhara national regional state located at the northern part of Ethiopia. The capital city of North Gondar administrative zone is Gondar; which is situated 727 kilometers(KM) from Addis Ababa and 180 KM far from the regional capital, Bahir Dar (fig:1). According to Ethiopian census 2007 report, the total population of North Gondar administrative zone was 2,921,470; of these 1,481,726 are males and 1,439,744 are females. There are about 21 woredas in north Gondar administrative zone, while the majority of the populations (about 84%) reside in the rural areas (48).

Based on the zonal health office report, there were about four hospitals (one referral hospital, Two rural hospital & one Defense Hospital), 33 urban health centers, 69 rural Health centers and 449 health posts. The Gondar hospital also serves both as a referral and teaching hospital for the region. Out of the 21 woredas, a total of 16 woredas were started provision of ART services to PLHIV while the number of ART sites had been reached to18 sites with three hospitals (including Gondar hospital) and 15 Health centers until the period of March, 2010.

Until the end of March 2010, it was also estimated that a total of 10,950 PLHIV were already on ART (adult women PLHIV was 6041). Accordingly, the numbers of women PLHIV in RH age group estimated in zonal (urban) & 15 Rural (woreda) ART sites that were already on ART was 2610 and 3431 respectively.

A total of 7 ART sites (three ART sites from Urban and Four ART sites from Rural) that were previously started ART services was part of this study. Based on the Information gathered from North Gondar Administrative HAPCO & Zonal Health Office ART sites that were selected for this study with estimated number of HIV positive women in each site were:(1) Gondar hospital(1800), (2) Gondar poly HC(654), (3) Gondar Azezo HC(156), (4)Maksegnit HC(93), (5) Dembia/Koladiba HC(191), (6) Dabat HC(168), and (7) Genadewoha (shehdi) hospital(901).

Figure 1: Map of Amhara region, North Gondar



4.2 Study design

A cross sectional study design that employed quantitative data collection method was used in order to assess the prevalence of pregnancy and fertility desire among HIV positive women who were attending ART clinics in the study area.

4.3 Population

4.3.1 Source population

The source population was comprised of all RH age group of PLHIV who were attending ART clinics in North Gondar administrative zone.

4.3.2 Study population

The study populations were all HIV positive women in RH age group (15-49 years) who had at least one visit & were attending ART clinics in selected ART sites in North Gondar administrative zone during the study period.

4.3.3 Inclusion criteria

- ✓ HIV positive Women in RH age group (15-49 years), who were attending ART clinics
- ✓ And those women in RH age group who had at least one visit during the study period

4.3.4 Exclusion Criteria

- Those who were seriously ill, unable to hear, and mentally disabled were excluded from the study.

4.4 Sample size calculation

Considering the absence of actual figures and data on most of the issues to be studied and to obtain the maximum sample size, the sample size calculation was done by taking assumptions. Prevalence of fertility desire among HIV positive women (P=50%), margin of error (w) = 4%, design effect=2 by adding 10% for contingency (for non response, etc) and 95% certainty.

Therefore the sample size for N=6041 can be calculated as:

$n= (Z \alpha/ _2)^2 *p (1-p)/W^2$ Where, n= required sample size

$n= 1.96^2*0.5(1-0.5)/0.04^2$ Z= alpha, P=prevalence,

n= 600 W= margin of error, and N= source population size

Since N<10,000 nf=n/1+n/N= 600/1+600/6041=546

nf= 546*2(design effect, because of multistage sampling) +10% for non response rate,

By making some adjustments, the total required sample size was = 1320

This sample size was compared with EPI info version 3.5.1 sample size calculation computed for different objectives as stated below:

Objective 1: To assess the prevalence of pregnancy, it was assumed that the prevalence of pregnancy=5%, ratio of unexposed to exposed=1:1, power 80%, Odds Ratio=2 at 95% confidence interval, the sample size was 1118,

Objective 2: To asses fertility desire, it was assumed that 50% of women would have a desire for child, with ratio of unexposed to exposed=1:1, power 80%, Odds Ratio=2, at 95% confidence interval, the sample size was 298 and

Objective 3: To asses factors related to fertility desire, it was also assumed that expected frequency of disease in exposed =50%, with ratio of unexposed to exposed=1:1, power 80%, Odds Ratio=1.5, at 95% confidence interval, the sample size was 814.

Therefore, it was large enough to take the sample size calculated (1320) from the single population proportion formula as stated above since it has addressed all the specific objectives.

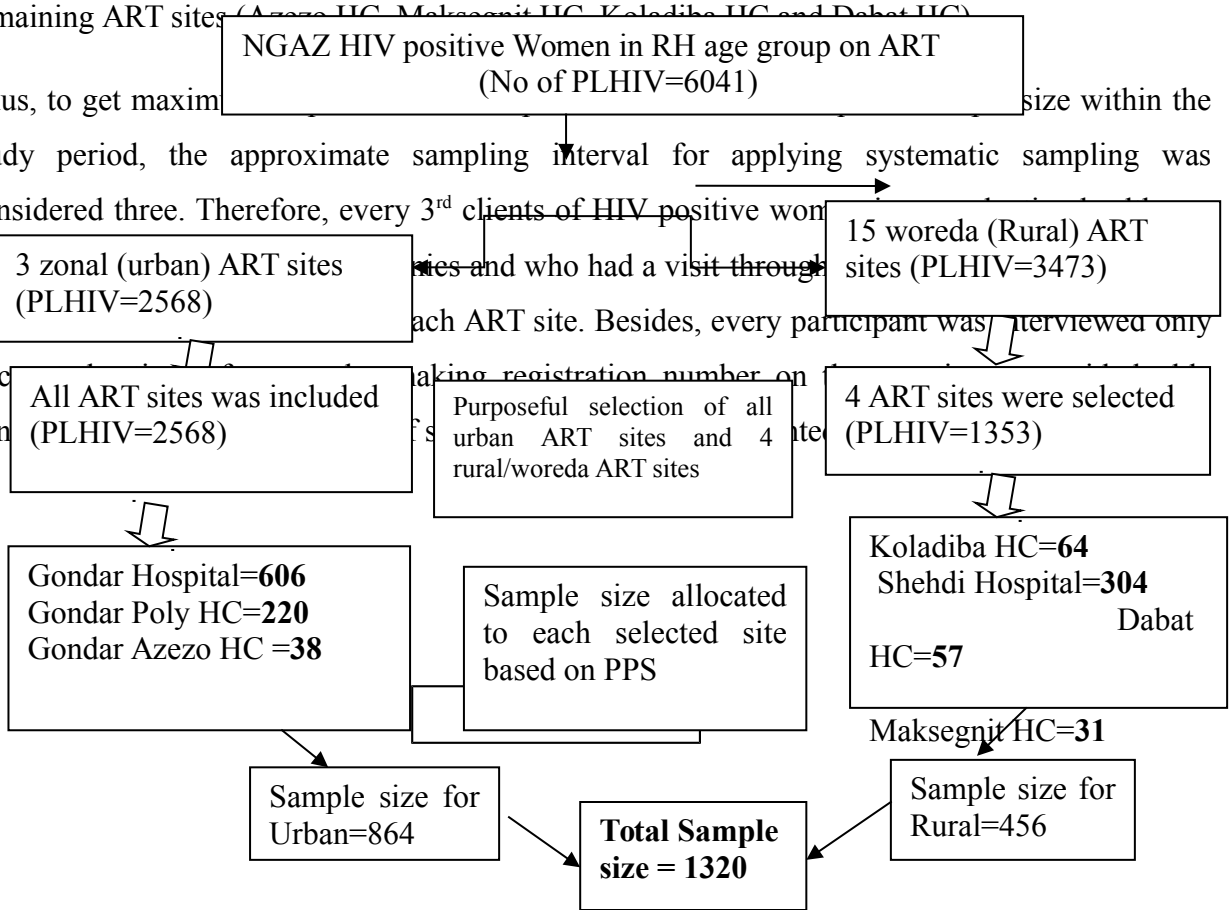
4.5 Sampling procedure

The sampling procedure employed in this study was a multi stage sampling technique. As a primary sampling unit, All ART sites were stratified into zonal (urban) and woreda (rural) ART sites. Among each stratified group, by applying purposive sampling technique, all zonal (urban) ART sites and four woreda (Rural) ART sites were selected which was considered as secondary sampling unit. That is why a design effect was used to calculate the sample size so as to minimize errors and increased representativeness across the health institutions. How ever, the reason for making purposive sampling of ART sites was related to cost (in terms of time and finance), geographic location, simplicity and effectiveness to get a representative sample size in relation to number of ART users at each site. Finally, a total of 7 ART sites were sampled for this study.

The distribution of sample size for each selected sites were based on probability proportionate to sample size allocation on the number of HIV positive women who were attending ART clinics in the respective sites during the study period.

Since it was assumed that there might be Shortage of time to capture all clients in random sampling; a systematic sampling was applied for selecting study subjects. Further more, it was also assumed that 45-60 clients of HIV positive women would visit Gondar hospital, Gondar HC and Metema Hospital per day where as 7-12 clients of HIV positive women would visit the remaining ART sites (Azezo HC, Maksegnit HC, Koladiba HC and Dabat HC).

Thus, to get maxim size within the study period, the approximate sampling interval for applying systematic sampling was considered three. Therefore, every 3rd clients of HIV positive wom gr ies and who had a visit through we ach ART site. Besides, every participant was interviewed only onc making registration number on con



Stratified into:

Fig 2: Schematic presentation of sampling procedure

4.6 Data collection procedures

The data for this study was collected by using questionnaire. A structured questionnaire for the survey was first developed in English, and translated into Amharic and then back translated to English to ensure its consistency. Content validity was achieved by using items from previously validated surveys and by developing items based on an extensive literature search, exploring factors that determine reproductive decisions in HIV-positive women.

The prepared questionnaire was pretested with similar study population of HIV positive women in Felegehiwot Hospital, Bahir Dar town that was not included in the study area. The appropriate modifications were made based on the findings.

Data collectors were selected based on work experiences especially those who were involved in chronic HIV care. The selection of health workers who were involved in ART follow up care was

due to the confidentiality and increased their cooperativeness than if data collectors were selected by else where from ART units.

The selected data collectors were trained for a one day workshop organized in their respective sites on the objectives of the study, its design, definition of terms, concepts & related issues and data collection procedures. More over, their views and opinions, expectations were considered during the training and consensus was reached.

A total of 12 data collectors (Nine nurses, three pharmacy technicians) and three supervisors (one Health Officer, one BSc Nurse & one pharmacist) were recruited & trained on the purpose of this study. Both Female & Male health workers who had at least two years experience were responsible for the data collection through out. In each day, 5% 0f the questionnaires were checked by supervisors and rechecked by the principal investigator too.

On the other hand, supportive supervisions and on the job training was part of the data quality control mechanisms and hence frequent travel and visit was carried out by supervisors and principal investigator. The time period for the data collection was from August 01, 2010-September 30, 2010.

4.7 Variables of the study

4.7.1 Dependent variable

The dependent variable is fertility desire

4.7.2 Independent variables

The independent variables include the demographic and socioeconomic measures of age, education, marital status, residence, occupation, monthly income, religion, time, health status on ART, Disclosure & partnership HIV status, Duration since HIV diagnosis and use of ART, contraceptive use, and pregnancy after knowing HIV status, parity or number of live children, related counseling and awareness of PMTCT.

4.8 Operational Definition

Reproductive age group was defined as a woman within age ranges between 15-49 years and had started ART.

Attending ART clinics was defined as women in reproductive age who were on ART follow up care and who visited the ART follow up care at least once during the study.

PLHIV was defined as people who knew their HIV status (sero positive) and were started ART.

Fertility Desire was defined as having a wish or interest with capability to be pregnant at least once or more than one time within a definite time period.

Desire to have a child was defined as HIV positive women who felt to want to have a child in the future that may not indicate whether the action was taken or not.

Fertility Intention: having a plan for conception or pregnancy with in a specified period of time which ranges between months or years since when started ART.

Improved Health Status: was defined as women on ART who perceived or reported that her health status is improved or getting better after she had started ART.

Not Improved Health Status: women on ART who did not reported that her status was no longer improved or deteriorated after she had started ART.

4.9 Data management

The collected data was kept confidentially and the questionnaire after being filled was collected by supervisors and returned to the principal investigator. Each of the filled questionnaires from each study area was put into a collection box, which was coded primarily. By using a double entry system, the collected data was processed into computer using EPI info version 3.5.1. All incomplete, ambiguous and unclear data was cleared from data processing.

4.10 Data Analysis procedures

For the purpose of meeting the objectives of the study, The Survey data was entered twice and verified prior to analysis. Statistical analyses were performed using SPSS Version 15.0.

The baseline characteristics of the study population were summarized using medians and ranges for continuous variables and frequencies and proportions for categorical variables. The results were presented using absolute numbers and proportions. Odds ratio, adjusted odds Ratio, and 95% confidence interval was used in Univariate and binary logistic regression analysis to determine the association of different factors related to the outcome variable.

Logistic regression analysis was computed for measuring those variables which are statistically significant (i.e. $P<0.05$) to assess the relative effect of independent variables up on fertility desire by controlling other factors.

The desire and intention for children was measured by whether a woman had a desire to child in the future with respect to time, age, marital status, education, religion, occupation, income etc, The factors towards pregnancy and fertility desire was measured by whether a woman would like to bear children was related to socio- economic, cultural, Health status conditions on ART, awareness and access to PMTCT services and Parity or number of live births and Number of live children.

4.11 Ethical consideration

Ethical clearance was received from Gondar University & Addis continental institute of public health Ethical review board committee. Letter of support was obtained from regional health bureau and delivered to North Gondar administrative health office. Turn by turn, North Gondar Health office had wrote a permission letter to selected ART sites. In all the study areas before the Commencement of this study, Head of the woreda health office and head of the health facility was contacted after presenting letters of support.

Informed consent was obtained verbally from every participant prior to the start of this research activities and confidentiality of information was assured by excluding names from identification of study subjects and by selecting data collectors who were already involved in ART follow up care units.

Similarly, Participants were informed that they had the choice of not participating, the right to escape any question they might not want to answer or the right to discontinue the interview

anytime. Besides, privacy was assured by preparing a room separated from the routinely work place and every information collected from each participant was kept in a collection box that was primarily coded and labeled as per the study areas.

In addition, all the benefits related to referrals and linkages for eligible clients were made as appropriate for participants, which includes provision of adequate counseling on sexual & Reproductive health issues in general and family planning in particular.

5. RESULTS

Socio - Demographic Characteristics

Out of 1320 HIV positive women sampled for this study, 1287(97.5%) of them was participated. 88.1% of the respondents were urban residents. The age ranges of the study participants was 15-49 years with an average age (±SD) of the clients was 31.4(± 6.4) years. The range was 34 with maximum and minimum age ranges was 49 and 15 respectively. 39.7% of them were either married or cohabiting partner, where as respondents who are divorced or separated and widowed were 29.7 % and 21.8% respectively. The majority of the respondents, 1158 (90%) were orthodox Christians. About 632 (49.1%) were Illiterate, 33.3 % & 23.5% were house wives &

daily laborers respectively. The majority of respondents, 63.9% fall under the income status of < 250 Birr per Month (<1 USD per Day). Three Hundred and thirty two (25.8%) of the respondents did not have a child where as 329(25.6%) of them had three and more children alive (Table 2).

Table 1: Socio-Demographic Characteristics of the study participants in North Gondar administrative zone, Seven ART sites, September 2010(n=1287)

Prevalence of Pregnancy

Variables	Frequency	
	No	Percent
Residence		
Urban	1134	88.1
Rural	153	11.9
Age		
15-24	147	11.4
25-34	695	54.0
35-49	445	34.6
Marital Status		
Married or cohabiting	511	39.7
Single	114	8.9
Divorced or Separated	382	29.7
Widowed	280	21.8
Religion		
Orthodox	1158	90.0
Muslim	110	8.5
Other [a]	19	1.5
Education		
Illiterate	632	49.1
Primary school	302	23.5
Secondary & Above	353	27.4
Occupation		
GO/NGO Employee	128	9.9
Daily Laborer	302	23.5
House Wife	429	33.3
Private/Self Business	310	24.1
Other [b]	118	9.2
Monthly Income		
< 250 ETB	823	63.9
250-499 ETB	243	18.9
500-999 ETB	158	12.3
>1000 ETB	63	4.9
Number Of Live Children		
None	332	25.8
One	346	26.9
Two	280	21.8
Three & Above	329	25.6

Note: a = Catholic, protestant; b=Students, CSW, without job and farmers

A total of 51(4.0%) of the respondents were pregnant at the time of this survey (Table 2). For 26 (50.2 %) of them, current pregnancies were planned and wanted. But for 25(49.8 %) of them, their pregnancies were wanted later or not wanted at all either happened without intention or accidentally. The major reasons for having current pregnancy (for those who said their pregnancy

was planned & wanted) was due to Partner or family pressure (34.6 %) (Table 3). 210(19.8 %) of the respondents had experienced at least one pregnancy after knowing their HIV status.

Table 2: Rate of pregnancy among HIV positive women by ART sites, In North Gondar Administrative Zone- September, 2010(n=1287)

Area/Health Facility Name	Presence of Current Pregnancy	
	Yes (No, %)	No (No, %)
Gondar University Hospital (GUH)	21(3.6)	570(96.4)
Gondar Health Center (GHC)	10(4.7)	203(95.5)
Azezo Health Center (AHC)	3(7.9)	35(92.1)
Maksegnit Health Center(MHC)	0(0.0)	31(100)

Koladiba Health Center(KHC)	1(1.6)	63(98.4)
Dabat Health Center(DHC)	0(0.0)	57(100)
Gendawuha Metema Hospital(MTH)	16(5.5)	277(94.5)
Total	**51(4.0)**	**1136(96.0)**

Table 3: Responses of 26 currently pregnant HIV positive women by their reasons to have planned pregnancy, North Gondar Administrative Zone- September, 2010

Reasons to Current pregnancy	Frequency	Percent
Improved Health Status	6	23.1
Possible To Have HIV Free Child	6	23.1
Partner Pressure & Expectation	4	15.4
Improved Health status & Possible To Have HIV free Child	5	19.2
Other Reasons*	5	19.2
Total	**26**	**100**

Other Reasons* = Family expectation

FERTILITY DESIRE

Four hundred and eighty (37.3%) of the study subjects desired to have a child. of these, 255(53.1%), 197(41%), and 28(5.9%) of them want to have one, two, Three & more children respectively. In parallel to this, 197(41.5) of them intended to fulfill their desired children within 1-2 years duration, 178 (37.1 %) with in 3-4 years and only 103(21.5 %) of the respondents intended four years later (Table 4). The major reasons of HIV Positive women for desire to have a child were since the possibility to have HIV free child (44.6%), and due to partner pressure & family expectation was (33.4%) (Figure: 3)

Table 4: No of children Desired by Time among HIV positive Women who want to have children in the future In North Gondar Administrative zone, September, 2010(n-=480).

Number of Desired Children in Future	Time to Have all Desired Children				
	< One year	1-2 years	3-4 Years	Above 4 Years	Total (No, %)
One	55(21.6)	110(43.1%)	69(27.1%)	21(8.2%)	255(53.1)
Two	0(0.0%)	34(17.3%)	106(53.8%)	57(28.9%)	197(41.0)
Three	0(0.0%)	0(0.0%)	2(9.5%)	19(90.5%)	21(4.4)
Four	0(0.0%)	0(0.0%)	1(14.3%)	6(85.7%)	7(1.5)

Total (No, %)	**55(11.5%)**	**144(30.0%)**	**178(37.1%)**	**103(21.5%)**	**480(100)**

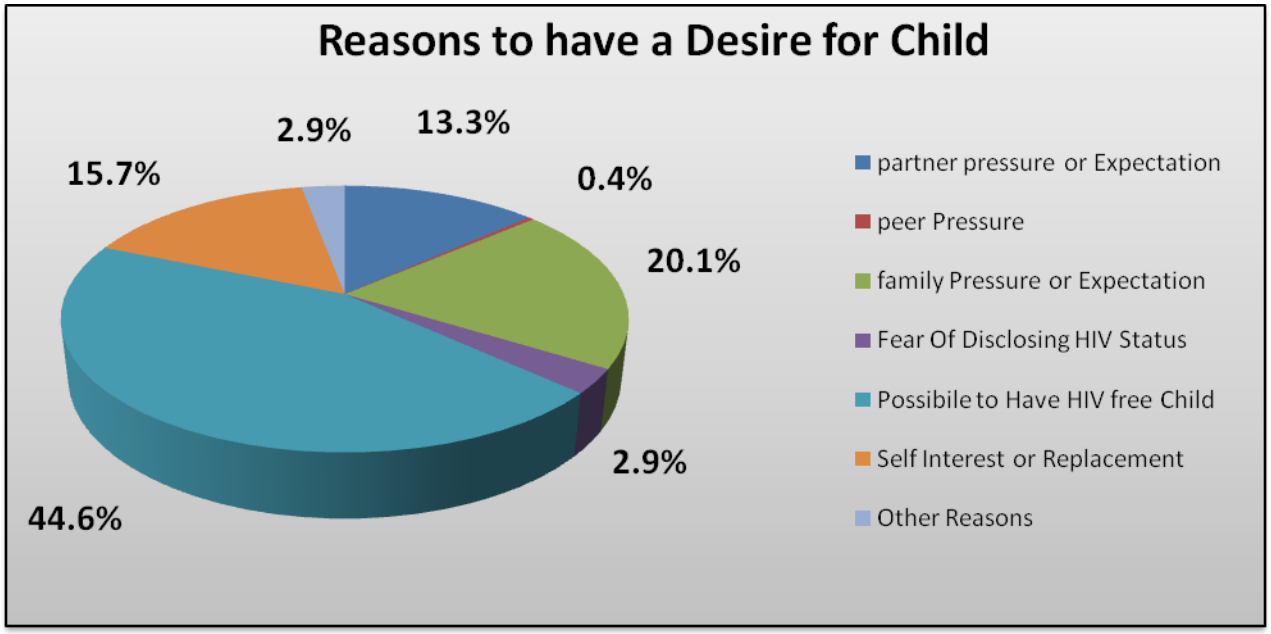


Figure 3: Reasons of 480 HIV Positive women who want to have Children in The Future in North Gondar Administrative zone, Seven ART sites-September, 2010

Factors associated with Fertility Desire among HIV Positive women

As many variables were assessed in Univariate analysis; age, marital status, education, number of live children, health status on ART, disclosure of HIV status and having awareness of PMTCT services were associated. But when adjusted, the predictors of fertility desire were age, marital status, number of live children, health status on ART and awareness of PMTCT services that remained significant in multivariate analysis.

Crude odd ratio (OR) obtained from Univariate logistic regression analyses and adjusted OR obtained from multivariate logistic regression analyses are shown in Table 5 & 6. Age was an important factor that was significantly associated with fertility desire. Women in the age group

15-24 years (OR: 1.6; 95% CI: 0.96- 2.55) and 25-34 years (OR: 3.3; 95% CI: 2.35-4.68) had a higher fertility desire for children as compared in the age group 35-49 years. This shows that there was a significant difference by age for fertility desire.(i.e. fertility desire within the age group 25-34 years was 3.3 times higher than the age group of 35-49 years).

Marital status was highly associated with fertility desire; those married or cohabiting women (OR: 5.4; 95% CI: 3.29-8.80), Single (OR: 2.2; 95% CI: 1.23-3.78 and divorced or separated (OR: 1.7; 95% CI: 1.11-2.65) had a desire for child more likely than women who were widowed.

Another factor related to fertility desire was the number of live children. For those women who had no live child had almost 12 times higher to desire for a child than women who had three and more children. For women with no child (OR: 11.9; 95% CI: 7.45-18.96), one child (OR: 6.0 95% CI: 3.86-9.35 and two child (OR: 1.7; 95% CI: 1.03-2.66)

Women with Improved health status due to ART treatment had more likely to desire for a child than women whose health status was not improved. (OR: 1.7; (95% CI: 1.17-2.42)
Having awareness on PMTCT services was significantly associated with fertility desire. The logistic regression analysis indicated that from the total number of women who are aware of PMTCT services (OR: 2.0; 95% CI: 1.11- 3.54) had more likely a desire for child than women who were not aware of the PMTCT services.

Table 5: Univariate analysis of factors potentially associated with Fertility Desire, by selected variables in North Gondar Administrative Zone, Seven ART sites, Sept. 2010(n=480).

Selected Variables	Desire to Have Children (N, %)	Do not desire to have Children (N, %)	Crude OR(95% CI)
Age			
15-24	72(49)	75(51)	5.715(3.76, 8.68)**
25-34	344(49.5)	351(50.5)	5.834(4.31, 7.91)**
35-49	64(14.4)	381(85.6)	1.00
Religion			
Orthodox	426(36.8)	732(63.2)	0.339 (0.13, 0.87)
Muslim	42(38.2)	68(61.8)	0.360(0.13, 1.00)
Others	12(36.8)	7(63.2)	1.00
Marital status			
Married or Cohabiting	258(50.5)	253(49.5)	4.929(3.45, 7.04)**
Single	58(50.9)	56(49.1)	5.006(3.10, 8.10)**
Divorced or Separated	116(30.4)	266(69.6)	2.108(1., 3.08)**

Widowed	48(17.1)	232(82.9)	1.00
Education			
Illiterate	208(32.9)	424(67.1)	0.599(0.46, 0.78)**
Primary school	113(37.4)	189(62.6)	0.729(0.53, 0.99)**
Secondary & above	159(45)	194(55)	1.00
Occupation			
GO/NGO Employee	62(48.4)	66(51.6)	1.323(0.79, 2.19)
Daily Laborer	98(32.5)	204(67.5)	0.676(0.44, 1.05)
House Wife	153(35.7)	276(64.3)	0.781(0.52, 1.18)
Private/Self Business	118(38.1)	192(61.9)	0.865(0.56, 1.33)
Other [b]	49(41.5)	69(58.5)	1.00
Monthly Income			
< 250 ETB	284(34.5)	539(65.5)	0.659(0.39, 1.12)
250-499 ETB	92(37.9)	151(62.1)	0.762(0.44, 1.33)
500-999 ETB	76(48.1)	82(51.9)	1.159(0.64, 2.08)
> 1000 ETB	28(44.4)	35(55.6)	1.00

Table 5: Continued

Selected Variables	Desire to Have Children (N, %)	Do not desire to have Children (N, %)	Crude OR(95% CI)
Number of Live Children			
None	210(63.3)	122(36.7)	13.182(8.79, 19.76)**
One	173(50.0)	173(50.0)	7.658(5.14, 11.41)**
Two	59(21.1)	221(78.9)	2.044(1.31, 3.19)**
Three & above	38(11.6)	291(88.4)	1.00
Duration on ART (Started)			
< One Year	131(37.5)	218(62.5)	1.269(0.84, 1.92)
1-4 Years	304(38.1)	494(61.9)	1.299(0.89, 1.90)
>4 Years	45(32.1)	95(67.9)	1.00
Health Status after ART Started			
Improved	409(38.7)	648(61.3)	1.413(1.04, 1.92)**
Not Improved	71(30.9)	159(69.1)	1.00
Disclosed HIV status to Partner			
Yes	284(41.3%)	404(58.7%)	1.00
No	196(32.7%)	403(67.3%)	0.692(0.55,0.87)**
Awareness on PMTCT Services			
Yes	460(38.8%)	725(61.2%)	2.601(1.57, 4.30)**

No	20(19.6%)	82(80.4%)	1.00

OR=Odds Ratio; CI=Confidence Interval
a=Catholic, Protestant; b=students, CSW, without job, Farmers

Table 6: Adjusted odds ratio from multivariate logistic regression for factors associated with fertility desire, In North Gondar Administrative Zone, Seven ART sites, Sept. 2010(n=480)

Variables	Desire to Have Children (N, %)	Do not desire to have Children (N, %)	Adjusted OR(95% CI)
Age			
15-24	72(49.0)	75(51)	1.6(0.96,2.55)
25-34	344(49.5)	351(50.5)	3.3 (2.35,4.68)
35-49	64(14.4)	381(85.6)	1.00
Marital status			
Married or Cohabiting	258(50.5)	253(49.5)	5.4(3.29,8.80)
Single	58(50.9)	56(49.1)	2.2(1.23,3.78)
Divorced or Separated	116(30.4)	266(69.6)	1.7 (1.11,2.65)
Widowed	48(17.1)	232(82.9)	1.00
Number of Live Children			
None	210(63.3)	122(36.7)	11.9(7.44,18.96)
One	173(50.0)	173(50.0)	6.0 (3.86,9.35)
Two	59(21.1)	221(78.9)	1.7(1.03,2.66)
Three & above	38(11.6)	291(88.4)	1.00
Health Status after ART Started			
Improved	409(38.7)	648(61.3)	1.7(1.17,2.42)

Not Improved	71(30.9)	159(69.1)	1.00
Awareness of PMTCT Services			
Yes	460(38.8%)	725(61.2%)	2.0(1.11, 3.54)
No	20(19.6%)	82(80.4%)	1.00

Adjusted for p<0.05(age, marital status, No of live children, Health status after ART started and awareness of PMTCT services)

6. DISCUSSION

This study reveals that 4.0% of the women with HIV sampled were pregnant. In comparison, the prevalence of pregnancy found in this study was lower than a study conducted in Uganda with 191 women aged 15–49 years in an HIV clinical cohort that reveal 8.5% (25) and higher than a study conducted in South Africa in 2007, that examined >1200 heterosexual HIV-infected persons of reproductive age, 3% of HIV positive women were pregnant (27). In this study, of all the total pregnancy, the unintended pregnancy was 49.8% and it was similar in a finding presented by USAID from a study conducted in 5 selected countries in 2008 that ranges from 51% to 91% (17-19). This indicates that either there is poor utilization of contraceptives or unmet need for family planning; and increases the risk of transmitting HIV to sexual partner and new born. On the other hand, among HIV positive women who had a planned pregnancy, the younger age and those married or cohabiting were more likely pregnant in consistent with other studies(38,39).

The reasons of respondents to why they want to give birth being HIV positive were most likely reliant on partner & family pressure (34.6%). But other reasons to get planned pregnancy were related to the possibility to have HIV free child (23.1 %) and improved health status (23.1 %). This shows that a personal and social expectation of child was assumed as normalcy to social acceptance and approval (41). How ever, Understanding how pregnancy, reproduction, and HIV

intersect needs further exploration on social and behavioral factors that may affect HIV positive woman's decision on their reproductive health.

This study also found that a high proportion (37.3%) of HIV positive women expressed a desire for having children. This figure is higher when compared to a study conducted in South Africa, 32% (27) and comparable to Rwanda, 40% (45), but lower than those studies reported from Ontario, Canada, 69% (26), Addis Ababa, 44.7%(47), Nigeria, 65.5%(29). However, the finding shows that a higher proportion of HIV positive women were desirous of reproduction and many factors that were mentioned in other studies remained significantly associated.

Among 480 HIV positive women who wished to have child in the future, the number of children desired was 745. Of note, 11.5% of women expected to get the entire desired child to be within one year, 30% between one and two years, 37.1 % between 2-4 years and only 21.5 % above four years. The majority of respondents has planed a shorter time for fulfilling their desired child which was higher than the study conducted in Canada that showed 20% of women expected to be within one year, 12% between one and two years and 7% between two and four years (27). This might be related to lack of awareness on child spacing or higher expectation of a child in ones life.

In this study, the major reasons of HIV positive women for a desire to have child was related to the possibility of getting HIV free child with the availability of PMTCT services (44.6%), partner pressure or expectation(13.3%), family expectations(20.1%) and self interest or replacement (15.3%). These reasons were almost similar with other studies reported from Swaziland (40), and Abidjan, Côte d'Ivoire (41). This shows that being HIV positive modified but did not remove reproductive desires, and diversity existed in reproductive desires and intentions.

In other words, many factors were associated as mentioned in other studies and are remained significantly associated. In this study, predictors of a desire to have child in future and intention to have children included: age, marital status, Number of live children, self reports of improved health status and having awareness on PMTCT services. Several other studies had consistent findings with respect to age, number of live children, marital status and improved health status

after ART started (38, 39, 42, 43), but those studies using different methodologies and populations, also identified higher rates of still birth, infant or neonatal mortality, contraceptive practice or use and cultural & psychological aspects as additional factors influencing fertility desire (24, 29, 30, 46). Of note is the fact that having awareness on PMTCT increased the likelihood of a desire to have children in this study.

As with other studies, age was an important factor that was associated with fertility desire in HV positive women. In this study, 49% of Women in the age group 15-24 years had a higher fertility desire for children though it did not achieve statistical significance. How ever it was possible that women in the younger age group 25-34 were more likely to report that they have a desire for child than women in the age group 35-49 years. This finding was similar as other studies indicated that Younger age has consistently been a predictor of fertility (38, 39). This shows that there is a higher expectation of child in younger age.

Marital statuses was also an important predictor of fertility desire in women living with HIV, the fact that married or being in common relation ship increased the likelihood of having a desire for child than women who were divorced or widowed. It was very surprising that the fertility desire of HIV positive women who were single was significantly associated. A currently married HIV-positive woman; and for those HIV positive women who have no child had a higher fertility desire as the strongest determinants of whether a woman wants to give birth in future, that was similar with other studies, Lesotho (42, 43).

Another factor related to fertility desire in this study was an improved health status after ART started. This is the fact that women who reported their health status improved were more likely to desire for child than women whose health status was not improved. This shows that many women decide to have a child when they feel better and healthier on ART (35-37).

In addition, women who had awareness on PMTCT is more likely than women who did not have awareness on PMTCT to want to have a child. However, some researches showed that the current impact of PMTCT programmes is limited by their failure to effectively link with sexual and reproductive health services and address the contraceptive needs of women with HIV (17-19). In our context, Having low antenatal care utilization, and less PMTCT coverage, this finding might indicate that the risk of mother to child transmission and to sexual partners would be

remained high unless proper linkages and education on ART, PMTCT and SRH services are created. Those who were pregnant, desired to have a child need education on risk behavior reduction and the efficacy of PMTCT interventions. For those who did not get pregnant and do not have a desire for child in the future need to get an ongoing counseling and advice on HIV prevention, fertility and PMTCT interventions so that HIV positive women could make informed decisions on their fertility desire and intentions. Although there were some consistent findings with other studies, the differences in factors influencing fertility desire may be the result of factors such as the sample characteristics in this study, the category of the study participants, time and the place and research methods indicating that the need for continued examination of reproductive issues of women living with HIV.

7. Strength and Limitations of the study

This study has several strengths; It had covered seven ART sites as much possible to get a representative sample across health institutions that include a recently and previously started ART sites. The other is the response rate 1320/1287 (97.5 %) was high; with only 33/1320 (2.5%) questionnaire was not completed. The survey was completed by trained nurses, pharmacists and health officers who work in HIV care & treatment units that added to the quality of data.

The major limitations of this study include since Study participants recruited at visit to ART units thus the more adherent are more likely to be enrolled creating the potential for Sample bias. The study subjects may not fully expressed their heart felt desire to have a child since they were interviewed by their care providers and Respondents' bias was more likely to happen. Sexual partners and those HIV positive women in Pre ART were not included in the study, which otherwise may give a different output. This study relies on self-reported behaviors throughout, including current pregnancy, creating the potential for less reporting of events. Finally, qualitative data was not supplemented, which otherwise may be helpful to get insights. How ever the study was able to document the existing factors related to fertility desire and contribute a valuable inputs regarding child bearing, prevalence of pregnancy, risk behaviors, as well as the social, cultural and economic characteristics.

8. Conclusions and Recommendations

The present study showed that a considerable percentage of current pregnancy and a large proportion of the HIV-positive individuals desired to have children. It has important implications for the prevention of vertical as well as heterosexual transmission of HIV. Reproductive decisions in women living with HIV are not only affected by their HIV status but depend on different factors. Furthermore, this study indicates that there could be an increase in children borne to parents living with HIV, and there is a need for social systems to ensure that they offer appropriate support to these families. Hence, Health professionals who work with HIV positive women in HIV care and treatment units can play a crucial role to provide accurate, nonjudgmental reproductive health information and appropriate counseling that includes safer sex practices and methods to decrease the risk of HIV transmission.

For those HIV positive women who were pregnant, have a strong desire for child and intends pregnancy should have proper and ongoing counseling on reproductive health matters & education on risk behavior reduction. And, those who did not get pregnant and do not have a desire for child in the future need to get an ongoing counseling and advice on HIV prevention, fertility and PMTCT interventions too, so that they can make an informed choice about their fertility. In addition, provision of adequate information on practicable reproductive options for HIV-positive individuals including the promotion of dual protection methods (Condom + another Contraceptive method) will reduce the risk of unintended pregnancy and HIV transmission, thus

relevant stakeholders should involve in promoting and strengthening the prevention of HIV,FP and other reproductive health counseling within the HIV care and treatment units. Qualitative research and a cohort study are also suggested to further explore causes for strong desire to have a child in HIV positive women that may vary by time, Health status, and socio cultural and behavioral factors.

9. References

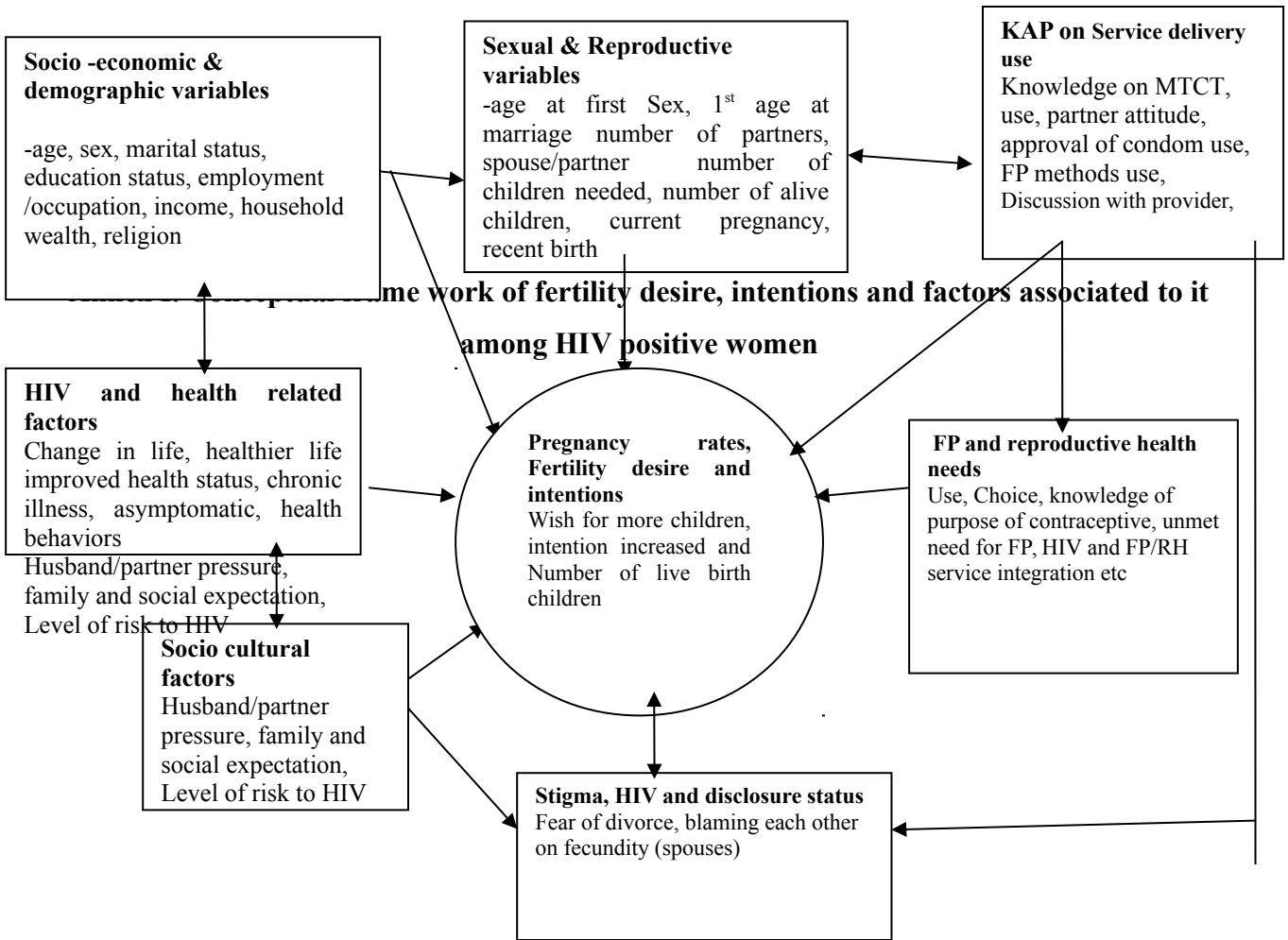
1. WHO. HIV/AIDS Fact Sheet. Global HIV epidemic, 11 December, 2009. Available at www.who.int/hiv/pub/guidelines(Accessed March 06, 2010)
2. UNAIDS. AIDS Epidemic Update. Geneva: UNAIDS; December 2007. Available at http://www.unaids.org/en/ (Accessed April 14, 2010)
3. Single point HIV Prevalence Estimate, Ethiopia: National HIV/AIDS prevention and control office, Ministry of health, 2007. Available at http://www.etharc.org /aidsineth/ publications / singlepointprev_2007(Accessed January 09, 2010)
4. Amhara HAPCO, editor. Presentation of HIV/AIDS facts. The national conference: Amhara Response to HIV/AIDS June 22-24, 2009; Bahir Dar. Available at www. etharc.Org /news/ pressreleases/.../the-amhara-hapco-conference.
5. UNAIDS/WHO. 2008 Report on the Global AIDS Epidemic; July 2008. Available at http://www.unaids.org/en/(Accessed April 17, 2010) pp 123-129.
6. Smith D, Mbakwem B. Life projects and therapeutic itineraries: marriage, fertility, and antiretroviral therapy in Nigeria. AIDS 2007; 21(l 5):37-41.
7. Cooper M, Harries J, Myer L, Orner P, Bracken H. ‘‘Life is still going on’’: reproductive intentions among HIV-positive women and men in South Africa. Soc Sci Med. 2007; 65(1):274-83.
8. Nakayiwa S, Abang B, Packel L, et al. Desire for children and pregnancy risk behavior among HIV-infected men and women in Uganda. AIDS Behav. 2006; 10(l 4):95-104.
9. Mona RL, Trevor AH, Saira SM, et al. Fertility Desires and Intentions of HIV-Positive Women of Reproductive Age in Ontario, Canada. PLoS Med. 2009; 4(12):79-85.
10. UNAIDS/WHO. AIDS Epidemic Update 2009. Available at http://data.unaids.org/ pub/ Report/2009/JC1700_Epi_Update_2009_en. (Accessed March 15, 2010)

11. WHO. Essential Prevention Interventions for Adults and Adolescents Living with HIV in Resource-Limited Settings; DRAFT. WHO, Geneva: January 24, 2008. Available at www.who.int/hiv/.../ (Accessed April 23, 2010) pp 27.
12. WHO. Bulletin of the World Health Organization: Bull World Health Organ vol.87 no.11 Genebra, Nov. 2009. Available at www.scielosp.Org/scielo.Php? (Accessed March 18, 2010)
13. Robert HR, Alan B, Landon M, Francisco IB, Ashraf K, et al. Integrating HIV Care and HIV Prevention: Legal, Policy, and Programmatic Recommendations AIDS, Columbia University, New York. Reproductive Health Matters 2008; 22(l 2):57-65.
14. Henshaw SK, Brown S, Eisenberg L. The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families. Fam Plann Perspect. 1998; 30(24):29-46.
15. Allen SA, Serufilira V, Gruber S, Kegeles P, Van de Perre M, Carael TJ. Pregnancy and contraception use among urban Rwandan women after HIV testing and counseling. American Journal of Public Health 1993; 83(5):705-10.
16. Batter V, Matela B, Nsuami M, et al. High HIV-1 incidence in young women masked by stable overall seroprevalence among childbearing women in Kinshasa, Zaire: estimating incidence from serial seroprevalence data. AIDS 1994; 8(6):811-7.
17. Adamchak S, Reynolds R, Janowitz B, Grey T, Keyes E. FP and HIV/AIDS integration: findings from five countries. USAID integration working group meeting; Washington, DC October 2008.
18. UNICEF. Guidance on Global Scale up of the Prevention of Mother-to-Child Transmission of HIV, November 2007.
19. World Health Organization, UNAIDS, UNICEF. Progress Report towards Universal access: Scaling up priority HIV/AIDS interventions in the health sector, Geneva: World Health Organization 2008.
20. HIV i-Base. Guide to HIV: guide to HIV, pregnancy & women's health. I-Base publications 2009; 37(4):38-40.
21. Philip S. The effects of HIV and AIDS on fertility in East and Central Africa National Centre for Epidemiology and Population Health. The Australian National University Health Transition Review1995; 76(5):179-89.
22. Palella FJ Jr, Baker RK, Moorman AC, Chmiel JS, Wood KC, et al. Mortality in the highly active antiretroviral therapy era: changing causes of death and disease in the HIV outpatient study. J Acquir Immune Defic Syndr. 2006 43(1):27-34.
23. Michael A. Tolle. Perinatal HIV Guidelines Working Group: Recommendations for Use of Antiretroviral Drugs in Pregnant HIV-1- Infected Women for Maternal Health and

Interventions to Reduce Perinatal HIV-1 Transmission in the United States. Public Health Service Task Force 2010; 59(3): 1-6
24. Angela K, David RB, Glenda G, Robert SH, Rachel K, Cari LM. Introduction to the Supplement on HIV, HAART, and Fertility in sub-Saharan Africa. AIDS Behav. 2009; 13(1):1-4.
25. Amanda R, Lieve VP, Rosemary L, Billy NM, Leigh AS, Jimmy W. HIV-1 disease progression and fertility: the incidence of recognized pregnancy and pregnancy outcome in Uganda. AIDS 2004; 18(5):799-804.
26. Loutfy MR, Hart TA, Mohammed SS, Su D, Ralph ED, et al. Fertility Desires and Intentions of HIV-Positive Women of Reproductive Age in Ontario, Canada. PLoS ONE 2009; 4(12):78-89.
27. Myer L, Morroni C, Rebe K. Prevalence and determinants of fertility intentions of HIV-infected women and men receiving antiretroviral therapy in South Africa. AIDS Patient Care STDS 2007; 21(1):278-85.
28. Fiore S, Heard I, Thorne C, Savasi V, Coll O, et al. Reproductive experience of HIV-infected women living in Europe. Hum Reprod 2008; 23(15):2140-4.
29. Zubairu I, Isa SA, Mohammed K, Musa B, Faisal S, Muktar HA. Correlates of Fertility Intentions among HIV/AIDS Patients in Northern Nigeria. African Journal of Reproductive Health 2009; 13(3):71-83.
30. Barbara N, Jianghong L, Sandra CT, Christopher GO and Jaya E. A Systematic Review of Factors Influencing Fertility Desires and Intentions among People Living with HIV/AIDS: Implications for Policy and Service Delivery. Springer Netherlands. AIDS and Behavior 2009; 13(5):949-68.
31. Myer L, Rebe K, Morroni C. Missed opportunities to address reproductive health care needs among HIV-infected women in antiretroviral therapy programmes. Trop Med Int Health. 2007; 12(1):1484-9.
32. Sweat MD, O'Reilly KR, Schmid GP, Denison J, de Zoysa I. Cost-effectiveness of nevirapine to prevent mother-to-child HIV transmission in eight African countries. AIDS 2004; 18(1):1661-71.
33. Bussmann H, Wester CW, Wester CN, Lekoko B, Okezie O, et al. Pregnancy rates and birth outcomes among women on efavirenz-containing highly active antiretroviral therapy in Botswana. J Acquir Immune Defic Syndr. 2007;45(1):269-73
34. Massad LS, Springer G, Jacobson L, Watts H, Anastos K, et al. Pregnancy rates and predictors of conception, miscarriage and abortion in US women with HIV. AIDS 2004; 18(1):281-6.

35. Sofia Gruskin, JD, Rebecca F, Sarah M, Laura F. HIV and Pregnancy Intentions: Do Services Adequately Respond to Women's Needs? American Journal of Public Health 2008; 98(10):231-57.
36. Johnson KB, Akwara P, Rutstein SO, Bernstein S. Fertility preferences and the need for contraception among women living with HIV: the basis for a joint action agenda. AIDS 2009; 230(1):7-17.
37. Kline A, Strickler, J, Kempf, J. Factors associated with pregnancy and pregnancy resolution in HIV seropositive women. Social Science Medicine1995; 40(11):1539-47.
38. Jessica H, Richard LR. Cultural Factors Influencing HIV-Related Attitudes and Behaviors in the Third World: Ethnicity and Religion in Guyana Race/Ethnicity: Multidisciplinary Global Perspectives. Indiana University Press 2009; 3(1):97-114.
39. ESA/P/WP.174. HIV/AIDS and fertility in sub-Saharan Africa: A review of the research literature. April 2002.
40. Agostino MZ. Sexual activity and condom use among people living with HIV in Swaziland. African Journal of AIDS Research 2009; 8(1):69 - 81.
41. Aka-Dago AH, Desgrees DL, Msellati P, Dossou R, Welffens-Ekra C. Issues surrounding reproductive choice for women living with HIV in Abidjan, Côte d'Ivoire. Reproductive Health Matters 1999; 7(13):20-9.
42. Adair T. Desire for children and unmet need for contraception among HIV positive woman in Lesotho. USAID: DHS working papers, Macro International Inc. 2007(32): 3-6.
43. WHO. Ministry of Health and Social Welfare, LESOTHO. Lesotho Demographic and Health Survey Calverton, Maryland, USA. MOHSW, BOS and ORC Macro 2005:1-18. Available at www.who.int/making_pregnancy_safer/countries/les.pdf(Accessed February 12, 2010)
44. Allen S, Sreufilira A, Gruber V, Kegeles S, Van De Perre P, Carael M, Coates TJ. Pregnancy and contraceptive use among urban Rwandan women after HIV testing and counseling. American Journal of Public Health 1993; 83 (5):705-10.
45. Elul, B, Delvaux T, Munyana E, Lahuerta M, Horowitz D, et al. Pregnancy desires, and contraceptive knowledge and use among prevention of mother-to-child transmission clients in Rwanda. American Journal of Public Health 2009; 23(97):19-26.
46. Whiteman MK, Kissin DM, Samarina A, Curtis KM, Akatova N. Determinants of contraceptive choice among women with HIV. AIDS 2009; 23(1):47-54.
47. Tamene W, and Fentahun M. Fertility desire and family planning demand among HIV positive women and men undergoing ART treatment in Addis Abeba, Ethiopia. AJAR 2007; 6(3):223-7.

48. Federal Democratic Republic of Ethiopia, Population census Commission: Summary and Statistical Report of the 2007 Population and Housing Census Results: Table 3, Population size of regions, zones and woredas by place of residence and sex, 2007:36-41.



Source: adapted from Addis Ababa students thesis on fertility desire in Suri ethnic group, ANC and unintended pregnancy studies, 2006.

Annex II: Questionnaire (English and Amharic version)

English questionnaire

Type of institution ---------- Name of the institution----------

Address of the institution---------- Institution code No ----------

General Instruction:

On this questionnaire, there is no need to write the name or the Addresses of the respondents. Ask each question exactly as it is written on the questionnaire and Circle the response that best matches the answer of the respondent. Ask the client if and only if she is in RH age group, volunteer to participate and give consent. But if the client is unwilling to participate, go to the next participant.

No	Questions	Coding categories of responses	Remark/Skip to
Part I. Socio Demographic & Economic conditions			
101	Residence	1. Urban 2. Rural	
102	What is your age now? (Based on last birth day)	_____Years	
103	What is your religion?	1. Orthodox 2. Muslim 3. Catholic 4. Protestant 5.Other specify_	
104	What is your marital status?	1. Married 2. Cohabiting partner 3. Never married 4. Separated 5. Divorced 6. Widowed 7. Others specify__	
105	To which ethnic group do you belong?	1. Amhara 2. Tigre 3. Agew 4. Oromo 5. others specify_____	
106	What is your educational status?	1. Illiterate 2. Read and write 3. Primary school 4. Secondary school 5. Certificate 6. Diploma 7. Degree 8. Above degree	
107	What is your Occupation?	1. Student 2. Commercial sex worker 3. Government/ NGO employee 4. Daily laborer 5. House wife 6. Private/self business 7. Others, specify____	
108	How much is your monthly income?	1. Less than 250 ETB 2. 250-499 ETB 3.500.999 ETB 4. above 1000 ETB	
109	What is your total monthly family income?	(approximately) _____Eth. Birr	
Part II. HIV and health status			
201	How long had it been you knew your HIV status?	1. Less than one year 3. 5-9 Years 2. 1-4 years 4. > 10 years	
202	How long is you have been started ART?	1. Less than one year 3. 5-9 Years 2. 1-4 years 4. > 10 years	
203	How do you state your current health status after you have been on ART compared to that you were not on ART?	1. Improved 2. Slightly improved 3. The same/ No change 4. Deteriorated	

204	Do you know the HIV status of your husband/partner?	1. Yes 2. No	If no, skip to Q no 206
205	If Yes to Q no 204 what is the HIV status of your husband/partner?	1. HIV positive 2. HIV negative	
206	Have you ever disclosed your HIV status to your husband/partner?	1. Yes 2. No 3. Other specify_____	If Yes, skip to Q no 301
207	If no to Q no 206 what is the reason?	_____ _____	
Part III: Sexual & Reproductive health Characteristics			
301	What was your first age when you have had sex with an opposite sex?	1. I was_____ years old 2. I don't remember 3. No response	
302	Have you ever been pregnant?	1. Yes 2. No 3. other specify_____	If no skip to Q no. 307
303	If yes to Q no. 302, what was your first age at first pregnancy?	I am _____years	
304	If yes to Q no. 302, how many live births did you give?	1. Enter no___ 2. a. sons_____ b. Daughter_____ 3. others specify_____	
305	How many live children do you have now?	1. Enter no_____ 2. a. sons_____ b. Daughter_____ 3. other specify_____	
306	Have you ever been pregnant after you had known your HIV status?	1. Yes 2. No 3. other specify_____	
307	Are you currently pregnant?	1. Yes 2. No 3. others specify_____	If no skip to Q no 310
308	If yes to Q no 307, is the pregnancy _____?	1. Wanted 2. Wanted later 3. Not wanted at all 4. Other specify_____	
309	What are your reasons to bear a child at this time? (More than one answer is possible)	1. Health status improved 2. Availability of ART services 3. Sine it is possible to have a child free from HIV 4. Husband/partner is discordant and wanted it 5. Other specify_____	

310	Do you want to have any or more children?	1. Yes 2. No	If no skip to Q no 314
311	If yes to Q no 310 what is your reason to have any more children? (More than one is possible)	1. Husband pressure 2. Peer pressure 3. Family/Social expectation 4. Fear of disclosing my HIV status 5. Since It is possible to have HIV free children 6. Other specify_____	
312	If yes to Q no 310, how many children would do you like to have in the future?	1. Enter no_____ 2. Sons--------- 3. Daughter------	
313	When would you like to intend to have your desired children?	1. < 1 year 2. 1-2 years 3 2-4 years 4. Above 4 years	
314	Assume that your partner and/or family are expecting a child from you in the future do you accept, refuse or what would you do?	1. Accept 2. refuse 3. unsure 4. Other specify	
315	Did you know/heard about PMTCT services?	1. Yes 2. No	If no skip to Q no 318
316	If Yes to Q no. 315, from where did you get information about MTCT of HIV?	1. During HIV testing 2. During follow up of antenatal Visits 3. During ART clinic follow up 4. From mass media (radio, TV) 5. From friends (peers) 6. Other specify _____	
317	If Yes to Q no. 315, Could you say that your awareness on PMTCT service has changed your decision to have a desire for children?	1. Yes 2. No	

318	If you could go back to the time, when you were very sick and feel unhealthy what was your desire for children at that time?	1. No desire at all 2. Have a desire for children 3. Don't know 4. Don't remember 5. others specify_____	
319	What Would you say PLHIV like you will have a desire for children is due to what reasons?	1. Due to ART access and change in life (healthy) 2. The presence of PMTCT services 3. Family and social expectations 4. Individual willingness to replace themselves 5. Other specify	
320	Are you currently using any contraceptives?	1. Yes 2. No	if no skip to Q no 322
321	If yes to Q no 320, which methods are you currently using?	1. Pill 2. Inject able 3. Norplant 4. Condom 5. IUCD 6. Others specify----------	
322	.If no to Q no 320 what are the reasons for not using contraceptives? (More than one is possible)	1. Fear of side effects 2. Husband/partner opposed 3. Parents opposed 4. Religious Prohibition 5. Lack of knowledge 6. Service not available 7.Others specify_____	
323	Would you say that using contraception is mainly your decision, or your spouse or others decision?	1. Female decision 2. male decision 3. Joint decision 4. Others specify_____	
324	Have you ever discussed about reproductive health needs with your ART service provider?	1. Yes 2. No	
325	If yes to Q no. 324, about which topics?	1. Family planning 2. Dual protection(condom use and contraceptives) 3. PMTCT services 4. ANC &PNC visits 5. others specify_____	

326	Do you think health professionals / workers provide the clients with adequate and relevant information about their reproductive health needs?	1. Yes 2. No	
327	If No to Q no. 326, why not, what do you think could be the reason?	_____	

Date if interview---------- Interviewer's name ----------, signature----

Supervisor's name ----------, Signature ----------

በሰሜን ጎንደር ዞን አስተዳደር የተመረጡ ጤና ተቋማት የፀረ-ኤች አይቪ መድሀኒት የሚከታተሉ አዋቂ ሴቶች ላይ የእርግዝና ሁኔታ፣ የእርግዝና ፍላጎትና እቅድ እና ተያያዥ ምክኒያቶችን ለማወቅ ለሚደረገው ጥናት የተዘጋጀ መጠይቅ

የተቋሙ ዓይነት----------የተቋሙ ስም ----------

የተቋሙ አድራሻ---------- የተጠያቂው መለያ ቁጥር ----------

አጠቃላይ መመሪያ፡ በዚህ ቃለ መጠይቅ የተጠያቂውን ስምም ሆነ አድራሻ መፃፍ አያስፈልግም። በዚህ ጥናት ዕድሚያቸው ከ 15-49 ዓመት የሆናቸው እና ፈቃደኛ የሆኑ ሴቶች ብቻ ይሳተፋሉ።ለእያንዳንዱ ዝርዝር ጥያቄዎች በቅደም ተከተል መሰረት በመጠየቅ ትክክለኛውን መልስ በማክበብ መሙላት።

ጥ. ቁ	ጥያቄ	ምላሽ	ምርመራ/ማስታወሻ
ክፍል አንድ፡ ማህበራዊ፣ ስነ-ህዝባዊ እና ኢኮኖሚያዊ ሁኔታዎች			

101	የመኖሪያ አድራሻ	1. ከተማ 2. ገጠር	
102	ዕድሜዎት ስንት ነው ?	_____በዓመት	
103	ሐይማኖትዎ ምንድን ነው ?	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ ከሆነ ይገለፅ	
104	የጋብቻ ሁኔታ	1. ያገባ 2. ያላገባ 3 በጓደኝነት አብሮ የሚኖር 4. ተለያይተው የሚኖሩ 5. የተፋታ 6. ባል የሞተባት 7. ሌላ ካለ ይገለፅ_____	
105	ብሔር	1. አማራ 2. ትግሬ 3. ኦሮሞ 4. አገው 5. ሌላ ከሆነ ይገለፅ_____	
106	የትምህርት ደረጃ	1. ያልተማረ 2. ማንበብና መፃፍ የሚችል 3. አንደኛ ደረጃ ት/ቤት 4. ሁለተኛ ደረጃ ት/ቤት 5. ሰርትፍኬት 6. ዲፕሎማ 7. ዲግሪ 8. ከዲግሪ በላይ	
107	ስራዎ ምንድን ነው ?	1. ተማሪ 2. ሴተኛ አዳሪ 3. የመንግስት/መንግስታዊ ያልሆነ ቅጥር ሰራተኛ 4. የቀን ሰራተኛ 5. የቤት እመቤት 6. ነጋዴ/የግል ስራ 7. ሌላ ካለ ይገለፅ_____	
108	የእርስዎ የወር ገቢዎ ስንት ነው?	1. ከ ብር 250 በታች 2. ከ ብር 250-499 3. ከ ብር 500-999 4. ከ ብር 1000 በላይ	
109	ጠቅላላ የቤተሰብ ወርሀዊ ገቢ በብር ስንት ይሆናል?	ብር ----------(በማጠጋጋት)	
ክፍል ሁለት፡ ከ ኤች አይቪ ጋር የተያያዘ የጤና ሁኔታ			
201	የኤች አይቪ ፖዘቲቭ መሆንዎን ካረጋገጡ ስንት ጊዜ ይሆናል?	1. ከ 1 ዓመት በታች 2. ከ 1-4 ዓመት 3. ከ 5-9 ዓመት 4. ከ 10 ዓመት በላይ	
202	የፀረ-ኤችአይቪ መድሀኒት መውሰድ ከጀመሩ ስንት ጊዜ ይሆናል?	1. ከ 1 ዓመት በታች 2. ከ 1-4 ዓመት 3. ከ 5-9 ዓመት 4. ከ 10 ዓመት በላይ	

203	የፀረ-ኤችአይቪ መድሀኒት መውስድ ከመጀመርዎ በፊት እና አሁን መውሰድ ከጀመሩ በኋላ ያለዎት የጤና ሁኔታ እንዴት ይገልፁታል?	1. ጥሩ ለውጥ አለ 2. በመጠኑ ለውጥ አለ 3. ምንም ለውጥ የለውም 4. የባሰ እየታመመኩ ነው	
204	የባለቤትዎን ኤች አይቪ ሁኔታ ያውቃሉ?	1. አዎ 2. አላውቅም 3. ሌላ ካለ ይገለፅ----------	አላውቅም ከሆነ ወደ ጥያቄ 206
205	ለጥያቄ ቁጥር 204 መልስዎ አዎ ከሆነ የባለቤትዎ ኤች አይቪ ሁኔታ(ውጤት) ምንድን ነው?	1. ኤች አይቪ አለበት 2. ኤች አይቪ የለበትም	
206	የ እርስዎን ኤች አይቪ ውጤት ለባለቤትዎ አሳውቀዋል?	1. አዎ 2. አላሳወቁም 3. ሌላ ካለ ይገለፅ----------	
207	ለጥያቄ ቁጥር 206 መልስዎ አላሳወቁም ከሆነ ምክኒያትዎ ምንድን ነው?	_____	
	ክፍል ሶስት፡ <u>የስነ ተዋልዶ ጤና ሁኔታ</u>		
301	ከተቃራኒ ፆታ ጋር ወሲባዊ ግንኙነት ለመጀመሪያ ጊዜ የጀመሩበት ዕድሜዎ ስንት ይሆናል?	1. ዕድሜየ---------- ነበር 2. አላስታውስም 3. መልስ የለም	
302	አርግዘው ያውቃሉ?	1. አዎ 2. አላውቅም	አላውቅም ከሆነ ወደ 307
303	ለጥያቄ ቁጥር 302 መልስዎ አዎ ከሆነ የመጀመሪያ እርግዝና በስንት ዓመትዎ ፀነሱ/ ዕድሜዎ ስንት ነበር?	---------- ዓመት	
304	በህይወት የተወለዱ/የወለዷቸው ልጆች ስንት ናቸው?	1. ----------በቁጥር 2. ወንድ-------ሴት---- 3. ሌላ ካለ ይገለፅ--------	
305	በአሁኑ ሰዓት በህይወት ያሉ ስንት ልጆች አለዎት?	1. --------በቁጥር ይገለፅ 2. ወንድ-------ሴት--- 3. ሌላ ካለ ይገለፅ---------	
306	የኤች አይቪ ውጤትዎን ካወቁ በኋላ አርግዘው ያውቃሉ?	1. አዎ 2. አይደለም 3. ሌላ ካለ ይገለፅ ----------	
307	በአሁኑ ሰዓት ነፍሰጡር ነዎት?	1. አዎ 2. አይደለሁም 3. ሌላ ካለ ይገለፅ -----	ለዚህ ጥያቄ መልስ አይደለሁም ከሆነ ወደ ጥያቄ ቁጥር 310 ይለፉ
308	ለጥያቄ ቁጥር 307 መልስዎ አዎ	1. የተፈለገ ነው	

	ከሆነ እርግዝናዎ ----------?	2. ከአረገዝኩ በኋላ የተፈለገ 3. በጭራሽ ያልተፈለገ 4. ሌላ ካለ ይገለፅ----------	
309	ለ ጥያቄ ቁጥር 308 መልስዎ የተፈለገ እርግዝና ከሆነ በአሁኑ ሰዓት ልጅ ለመውለድ የፈለጉበት ምክኒያት ምንድን ነው ? (ከ አንድ በላይ መልስ ይቻላል ነገር ግን ምርጫውን ሳያነቡ ተጠያቂው የሚሰጠውን መልስ ያክበቡ)	1. የጤናየ ሁኔታ በመሻሻሉ 2. የፀረ-ኤች አይቪ መድሀኒት አገልግሎት በመኖሩና ተጠቃሚ በመሆኔ 3. ከኤች አይቪ ነፃ የሆነ ልጅ መውለድ ስለሚቻል 4. የባለቤቱ ኤች አይቪ ውጤት ከኔ የተለየ በመሆኑና ባለቤቴ ልጅ በመፈለጉ 5. ሌለ ካለ ይገለፅ----------	
310	ልጅ/ተጨማሪ ልጆች እንዲኖርዎት ይፈልጋሉ?	1. አዎ 2. አልፈልግም	ለዚህ ጥያቄ መልስ አልፈልግም ከሆነ ወደ ጥያቄ ቁጥር 314 ይለፉ
311	ለጥያቄ ቁጥር 310 መልስዎ አዎ ከሆነ ልጅ እንዲኖርዎት የፈለጉበት ምክኒያት ምንድን ነው ?(ከ አንድ በላይ መልስ ይቻላል)	1. የባለቤቴ ፍላጎት 2. በጓደኞች ግፊት 3. የቤተሰብ ፍላጎት 4. የኤች አይቪ ውጤቴ እንዳይታወቅ ስለምፈራ 5. ከኤች አይቪ ነፃ የሆነ ልጅ መውለድ ስለሚቻል 6. ሌላ ካለ ይገለፅ----------	
312	ለጥያቄ ቁጥር 310 መልስዎ አዎ ከሆነ ወደፊት ስንት ልጆች እንዲኖርዎት ይፈልጋሉ?	1. ----------በቁጥር 2. ወንድ------- 3. ሴት----	
313	የሚፈልጉቱን ልጅ በምን ያህል ጊዜ ውስጥ ማግኘት ይፈልጋሉ?	1. በአንድ ዓመት ውስጥ 2. ከ 1-2 ዓመት 3. ከ 3-4 ዓመት 4. ከ 4 ዓመት በኃላ	
314	ለምሳሌ ባለቤትዎ ወይም ቤተሰብዎ ልጅ እንዲወልዱላቸው ቢፈልጉ እርስዎ ይስማማሉ፣ ወይስ ምን ያደርጋሉ?	1. እስማማለሁ 2. አልስማማም 3. እርግጠኛ አይደለሁም 4. ሌላ ካለ ይገለፅ-	
315	ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላለፍ የመከላከል አገልግሎት እንደሚሰጥ ያውቃሉ?/ ሰምተዋል?	1. አዎ 2. አላውቅም	ለዚህ ጥያቄ መልስዎ አላውቅም ከሆነ ወደ ጥያቄ ቁጥር 318 ይለፉ

316	ለጥያቄ ቁጥር 315 መልስዎ አዎ ከሆነ መረጃውን ከየት አገኙት?	1. የኤች አይቪ ደም ምርመራ ባደረኩበት ወቅት 2. የእርግዝና ክትትል ሳደርግ 3. የጸረ ኤች አይቪ መድሀኒት አገልግሎት ስከታተል 4. በሬድዮ ወይም ቴሌቪዝን 5. ከጓደኞች 6. ሌላ ካለ ይገለፅ----------	
317	ለ ጥ.ቁ 315 መልስዎ አዎ ከሆነ ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላለፍ የመከላከል አገልግሎት እንደሚሰጥ ያለዎት ግንዛቤ ሌላ ልጅ የመውለድ ፍላጎት እንዲኖርዎ አስችሎዎታል?	1. አዎ 2. አይደለም	
318	ወደ ኋላ ያለውን ጊዜ በማስታወስ እርስዎ በህመም ላይ እያሉ እና ጤንነትዎ ሳይሻሻል በነበረበት ጊዜ ልጅ የመውለድ ፍላጎት ነበረዎት?	1. ምንም ፍላጎት አልነበረኝም 2. ፍላጎት ነበረኝ 3. አላውቀውም 4. አላስታውስም 5. ሌላ ካለ ይገለፅ----------	
319	እንደ እርስዎ ቫይረሱ በደማቸው ያለባቸው ሰዎች ልጅ የሚፈልጉበት ምክኒያት ምንድን ነው ብለው ያስባሉ?	1. የፀረ ኤች አይቪ መድሀኒት አገልግሎት መኖሩና ረዥም ዕድሜ መኖር ስለሚቻል 2. ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላለፍ የመከላከል አገልግሎት ስለሚሰጥ 3. የቤተሰብና ማ/ሰብ የልጅ ፍላጎት መኖር 4. ግለሰቦች እራስን የመተካት ፍላጎት ስላላቸው 5. ሌላ ካለ ይገለፅ----------	
320	በ አሁኑ ሰዓት የ ወሊድ መቆጣጠሪያ ዘዴ ይጠቀማሉ	1. አዎ 2. አልጠቀምም	መልስዎ አልጠቀምም ከሆነ ወደ ጥያቄ ቁጥር 322 ይለፉ
321	መልስዎ አዎ ከሆነ ከሚከተሉት ውስጥ የትኛውን ዓይነት የወሊድ መቆጣጠሪያ ዘዴ ይጠቀማሉ	1. ክኒን 2. መርፌ 3. በክንድ ላይ የሚቀበር 4. ኮንደም 5. በማህፀን ውስጥ የሚቀመጥ 6. ሌላ -----	

322	የወሊድ መቆጣጠሪያ ዘዴ ላለመጠቀም ምክኒያትዎ ምንድን ነው(ከ አንድ በላይ መልስ ይቻላል)	1. መድሀኒቱን ጎንዮሽ ጉዳት በመፍራት 2. ባለቤቱ ስለተቃወመ 3. የቤተሰብ ተቃውሞ 4. የሀይማኖት ተፅዕኖ 5. የዕውቀት ማነስ 6. አገልግሎቱ አለመኖር 7. ሌላ ካለ ይገለፅ----------	
323	የ ወሊድ መቆጣጠሪያ ዘዴ ለመጠቀም ውሳኔው ያንቺ ብቻ ነው ወይስ የባለቤት ወይስ የጋራ ነው ማለት ይቻላል?	1. የእኔ ብቻ ውሳኔ ነው 2. የባለቤቱ ብቻ ውሳኔ ነው 3. የእኔና የባለቤቱ ውሳኔ ነው 4. ሌላ ካለ ይገለፅ----------	
324	ከ ፀረ ኤች አይቪ መድሀኒት ክትትል ባለሙያዎች ጋር ስለ ስነ ተዋልዶ ጤና ምክክር አድርገው ያውቃሉ ?	1. አዎ 2. የለም 3. ሌላ ካለ ይገለፅ------	
325	ለጥያቄ ቁጥር 324 መልስዎ አዎ ከሆነ በየትኞች ርዕሶች ላይ ነው ምክክር ያደረጉት?	1. ስለ ቤተሰብ ምጣኔ 2. እርግዝናና ኤች አይቪን ስለ መከላከል 3. ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላለፍ ስለመከላከል 4. ስለ ዕርግዝናና ከወሊድ በኋላ ክትትል ስለማድረግ 5. ሌላ ካለ ይገለፅ---------	
326	የጤና ባለሙያዎች እና አገልግሎት ሰጭዎች ኤች አይቪ ላለባቸው ሰዎች በስነ ተዋልዶ ጤና ዙሪያ በቂ መረጃ ይሰጣሉ ብለው ያስባሉ?	1. አዎ 2. አይደለም	
327	መልስዎ አይደለም ከሆነ ምክኒያቱ ምንድን ነው ብለው ያስባሉ?	_____	

የቃለመጠይቁ ቀን---------- የጠያቂው ስም----------ፊርማ----------

የተቆጣጣሪው ስም----------ፊርማ----------

Annex III: Consent form: English and Amharic version

a. Verbal consent form before conducting interview (English)

Greeting

Hello, I am_____. I am working as data collector in the survey conducted by Addis continental institute of public health and Gondar University. We are interviewing women PLHIV here about the prevalence of pregnancy, fertility desire and factors relate to it. This study will help us to improve the reproductive health services to PLHIV and will allow us to strengthen/integrate our existing RH programs and services to HIV care and support services. To attain this purpose, your honest and genuine participation by responding to the question prepared is very important and highly appreciated.

Your name will not be written in this form and will never be used in connection with any information you tell us. All information given by you will be kept strictly confidential and your participation is voluntarily. You can refuse to answer any question or to stop the interview at any time if you are not comfortable. However, your honest answers to these questions will help us to understand the reasons why PLHIV give birth and assess their level of fertility desire and intentions in relation to associated factors. We appreciate your kindness to be part of the study. The interview will take about 15- 25 minutes. Are you willing to participate?

If yes, continue. If no, skip to the next participant.

b. Verbal consent form before conducting interview (Amharic Version)

የፈቃድ መጠይቅ

ጤና ይስጥልኝ! ስሜ----------ይባላል።የመጣሁት በጎንደር ዩንቨርሲቲ እና አዲስ ኮንቲነንታል የማህበረሰብ ጤና አጠባበቅ ትምህርት ክፍል ስለ እርግዝና ሁኔታ፣ የእርግዝና ፍላጎት፣ እቅድ እና

ተያያዥ ምክኒያቶችን ለማወቅ በሚያደርገው ጥናት መረጃ ለማሰባበሰብ ነው።ጥናቱም ኤች አይቪ በደማቸው ያለባቸው ስዎች የስነተዋልዶ ጤና አገልግሎት አሰጣጥ ለማሻሻል ሚረዳና በዚህም በአሁኑ ሰዓት በኤች አይቪ ድጋፍና ክብካቤ አገልግሎት ከስነ ተዋልዶ አገልግሎት ጋር በማጠመር አገልግሎቱን ቀልጣፋና የተቀናጀ ለማድረግ ያስችላል። ለጥናቱ መሳካት የእርስዎ ተሳትፎ እና ፈቃደኝነት ጠቀሜታ ስለሚኖረው ተሳታፊ እንዲሆኑ በአክብሮት እንጠይቅዎታለን።በዚህ ጥናት የእርስዎ ስም አይጻፍም። በዚህ አጋጣሚ እርስዎ የሚሰጡት ማንኛውም ምላሽ በሚስጢር የሚጠበቅ መሆኑን እናረጋግጥልዎታለን።ይህ ቃለመጠይቅ የሚፈጀው ጊዜ ከ 15-20 ደቂቃ ስለሚሆን በዚህ ጥናት ቢሳተፉ ደስተኞች ነን።

በጥናቱ ተሳታፊ ለመሆን ፈቃደኛ ነዎት?

አዎ..... አይደለሁም ..... አይደለሁም ከሆነ ወደ ሚቀጥለው ተሳታፊ እለፍ

Declaration

I, the undersigned declare that this thesis is my original work in partial fulfillment for the degree of master of Public Health. I also declare that it has never been presented in this or any other university and that all resources and materials used in the thesis have been dully acknowledged.

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